REMARKS

Applicants respectfully traverse the § 103(a) rejection of claim 1-3 over Tolfa '907, Tazaki '803, and Fahl WO '499, "considered separately." See Office Action at pages 2-3.

In the present invention, as recited in claims 1-3, the polyalkylene glycol includes the following features:

1. A structure represented by a formula (1): $R^1\{-(OR^2)_n\text{-}OH\}_m$;

2. A number average molecular weight of not less than 500 or more than 5000;

3. a rate of ethylene group among the alkylene group of more than 0 and not more than 80 mol %; and

4. a rate of molecules in which the alkylene group bonded to a terminal hydroxyl group in the polyalkylene glycol is an ethylene group of not more than 20 mol %.

The above features define the polyalkylene glycol compound in a refrigerating machine oil that can fully satisfy the requirements including lubricity, miscibility with refrigerant, fluidity at low temperatures, and stability in good balance in use along with CO_2 refrigerant. The fourth feature listed above, for example, provides stability of the refrigerating machine oil, as disclosed at page 13, line 22 to page 19, line 23 of the present specification, as supported by comparisons of the disclosed examples and comparative examples.

In contrast, Tolfa discloses a lubricant-refrigerant composition for a compression refrigeration system which comprises a carbon dioxide refrigerant, a lubricant of an aliphatic naphthalene, and a supplemental lubricant, such as polyalkylene glycol. Tolfa

does not disclose or suggest at least that a rate of ethylene group among the alkylene group of more than 0 and not more than 80 mol %, or that a ratio of molecules in which an alkylene group bonded to the terminal hydroxyl group in a polyalkylene glycol is an ethylene group of not more than 20 mol %. Lacking a teaching of at least these two claim features, Tolfa alone cannot suggest the claimed invention.

Tazaki discloses a refrigerator oil used in compression refrigerators with a carbon dioxide refrigerant. An oxygen-containing organic component is the base oil, and the base oil includes a polyalkylene glycol. Tazaki, however, also does not disclose or suggest at least a ratio of molecules in which an alkylene group bonded to a terminal hydroxyl group in the polyalkylene glycol is an ethylene group of not more than 20 mol %, so combining Tazaki also does not suggest the claimed invention.

Finally, Fahl discloses polyalkylene glycols as lubricants for carbon dioxide refrigerating machines, heat pumps, and related air conditioning systems. Fahl also does not disclose or suggest a rate of molecules in which the alkylene group bonded to a terminal hydroxyl group in the polyalkylene glycol is an ethylene group of not more than 20 mol %. Fahl, therefore, also does not suggest all of the limitations set forth in claims 1-3.

The § 103(a) rejection over these three references, therefore, is unsupportable and should be withdrawn. Applicants respectfully request reconsideration and allowance of claims 1-3.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account 06-0916.

Respectfully submitted,

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